

I. Aspirin exacerbated respiratory disease (AERD):

A. Characteristics:

1. Onset; average age 30 years
2. Pansinusitis (eosinophilic) close to 100%
3. Nasal polyps: usually at least some in all patients
4. Asthma usually present but can be absent, mild, moderate or severe

B. Prevalence:

1. All asthmatics: 10-20%
2. Nasal polyps and pansinusitis: 30-40%
3. Patients with nasal polyps, sinusitis, asthma and prior history of respiratory reaction to ASA or other NSAID: 80-89%
4. Patients avoiding ASA but have triad: 43%
5. AERD is under-diagnosed:
 - a. Patient avoiding ASA and other COX-1 inhibitors
 - b. ASA/NSAID reaction mild or 3 hours after ingestion
 - c. Patient taking LTR₁A which can block some mild reactions
6. AERD is over-diagnosed:
 - a. Patient has triad only but told and believe they have AERD
 - b. Patients takes an NSAID, has an asthma attack and believes the 2 events are causally connected (Drug is innocent bystander)

C. Leukotriene overproduction:

1. Urinary LTE₄ more likely to be elevated in AERD
2. The higher the baseline uLTE₄ the greater the asthmatic reaction during oral aspirin challenges.
3. uLTE₄ not diagnostic of AERD. Many AERD patients have low values
4. Consensus is to treatment with anti-Leukotriene drugs in most cases

II. Treatment of AERD:

A. Avoidance of all COX-1 inhibitors:

1. Prevents potential catastrophic respiratory reactions
 - a. Increased ICU admissions with AERD patients taking NSAIDs and death during bronchospasm away from medical facilities.
2. Avoiding NSAIDs does not prevent AERD from starting or progressing

B. Treatment of the eosinophilic mast cell infiltrated respiratory mucosal disease

1. Upper airway is the primary source of symptoms and Rx appreciated
2. Major QOL problems for patients with AERD:
 - a. Loss of smell
 - b. Loss of taste
 - c. Nocturnal nasal obstruction with sleep deprivation fatigue
 - d. Recurrent infectious sinusitis

3. Asthma can be very severe and systemic steroid dependent
4. Majority of AERD patients asthma relatively easy to control unless:
 - a. GERD
 - b. During viral respiratory infections
 - c. Chronic infectious sinusitis
 - d. Some forms of IgE mediated disease (animal in house, mold contamination in the house)

C. Aspirin desensitization, followed by daily treatment with aspirin 325 mg BID
Or 650 mg BID (No deaths from aspirin challenge/ desensitization)

1. Also protects respiratory tract from inadvertent NSAID ingestion
2. Also can prevent arterial thrombosis with ASA inhibition of TBXA₂
3. Five studies at Scripps Clinic with 325 patients enrolled and followed to
Determine whether or not daily ASA Rx changed AERD
4. Efficacy measured by:
 - a. Improvement in smell
 - b. Increase in nasal airflow
 - c. decrease in infectious sinusitis episodes per year
 - d. Improvement in nasal symptoms scores
 - e. Improvement in asthma symptom scores
 - f. Reduction in use of emergency room use during asthma attacks
 - g. Decrease number of hospitalizations for asthma
 - h. Decrease need for revision nasal polyp and sinus surgery
 - h. Simultaneous decrease in systemic and nasal steroids
5. High rate of side effects from continued aspirin treatment
 - a. Drop out rate around 13% in most studies > month
 - b. One patient unable to maintain desensitized state
 - c. Expected complications are:
 - 1) Bleeding
 - 2) Gastritis and ulcers with or without GI bleeding
 - d. Unexpected complications are:
 - 1) Urticaria and angioedema to aspirin
 - 2) Unusual odd-ball ASA associated reactions or diseases
(Difficult to prove without re-challenge and usually ASA innocent bystander)

D. Concomitant diseases gets in the way of therapeutic successes

1. IgE mediated rhinitis and asthma
2. GERD with LPR
3. Chronic infectious sinusitis superimposed on CHES
4. Aggressive treatment recommended